TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION Effective July 1, 2011
WIN-1418

*The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation **July 2014**.*

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code and the Texas Engineering Practice Act.

Series V-200 Vinyl Single Hung Windows, Impact Resistant, manufactured by

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will be acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions, the design drawings referenced in this evaluation report, and this product evaluation report.

PRODUCT DESCRIPTION

The Series V-200 window is a vinyl single hung window. The vinyl single hung windows evaluated in this report are impact resistant windows. This product evaluation report is for vinyl single hung windows based on the following tested constructions:

General Description:

System	Description	Label Rating
1	Series V-200 Vinyl Single Hung Windows; (O/X); Equal Lite; Large Missile Impact	H-AW120 54 x 80 Neg DP=150 Missile Level D
2	Series V-200 Vinyl Single Hung Windows; (O/X); Oriel; Large Missile Impact	H-AW120 54 x 80 Neg DP=150 Missile Level D
3	Series V-200 Vinyl Single Hung Windows; (O/X); Equal Lite; Small Missile Impact	H-AW120 54 x 80 Neg DP=150 Missile Level A
4	Series V-200 Vinyl Single Hung Windows; (O/X); Oriel; Small Missile Impact	H-AW120 54 x 80 Neg DP=150 Missile Level A

Product Dimensions:

System	Overall Size	Operable Sash Size	Fixed Daylight Opening Size
1	54" x 80"	48 3/4" x 39"	46" x 33 1/2"
2	54" x 80"	48.812" x 26 5/8"	46" x 46"
3	54" x 80"	48 3/4" x 39"	46" x 33 1/2"
4	54" x 80"	48.812" x 26 5/8"	46" x 46"

Glazing Description:

System	Glass Construction [1]	Glazing Method [2]
1	IG-1 or IG-2	GM-1
2	IG-1 or IG-2	GM-1
3	IG-3 or IG-4	GM-1
4	IG-3 or IG-4	GM-1

Note: [1] See the "Glass Construction Key" for the glazing construction.
[2] See the "Glazing Method Key" for the glazing method description.

Glass Construction Key:

IG-1: The window contains an insulating glass unit. The insulating glass unit is comprised of a 3/16" fully tempered glass lite and a laminated glass unit separated by a desiccant filled spacer system. The laminated glass unit is comprised of two double strength (1/8") heat strengthened glass lites with a 0.060" thick SGP interlayer by DuPont. The glass thickness used in the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

IG-2: The window contains an insulating glass unit. The insulating glass unit is comprised of a 3/16" fully tempered glass lite, a desiccant filled spacer system, a double strength (1/8") heat strengthened glass lite, a desiccant filled spacer system, and a laminated glass unit. The laminated glass unit is comprised of two double strength (1/8") heat strengthened glass lites with a 0.060" thick SGP interlayer by DuPont. The glass thickness used in the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

IG-3: The window contains an insulating glass unit. The insulating glass unit is comprised of a 3/16" fully tempered glass lite and a laminated glass unit separated by a desiccant filled spacer system. The laminated glass unit is comprised of two double strength (1/8") heat strengthened glass lites with a 0.035" thick SGP interlayer by DuPont. The glass thickness used in the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

IG-4: The window contains an insulating glass unit. The insulating glass unit is comprised of a 3/16" fully tempered glass lite, a desiccant filled spacer system, a double strength (1/8") heat strengthened glass lite, a desiccant filled spacer system, and a laminated glass unit. The laminated glass unit is comprised of two double strength (1/8") heat strengthened glass lites with a 0.035" thick SGP interlayer by DuPont. The glass thickness used in the tested assembly and in smaller assemblies shall comply with ASTM E 1300-04.

Glazing Method Key:
GM-1: The insulating glass units are exterior glazed with a glazing bead. There is a glazing gasket on the exterior and a glazing leg adaptor on the interior.

Frame Construction: The frame members are manufactured from extruded vinyl (PVC). The frame corners are mitered and welded construction. The fixed meeting rail is installed between the frame jambs.

Sill Extender: A sill extender is secured to the interior leg of the sill with a snap-fit connection.

Sash Construction: The sash members are manufactured from extruded vinyl (PVC). The sash corners are mitered and welded construction. The fixed sash is secured to the window with screws.

Reinforcement: Extruded aluminum reinforcement is utilized in the perimeter frame members, the frame head and sash, the fixed meeting rail, the fixed sash members, and the operable sash members. The reinforcement extends the length of the members.

Hardware:

- Snap latches; Two (2) required; Located at each end of the sash bottom rail handle.
- Tilt latch; Two (2) required; Located at each end of the sash top rail.
- Auto lock; Two (2) required; Located 10 inches from each end of the sash top rail.
- Auto lock keepers; Two (2) required; Located on the fixed meeting rail.
- UltraLift spiral balance system; Two (2) required; Located in each side jamb.

Product Identification: Two certification program labels (Keystone) will be affixed to the window. One certification program label includes the performance characteristics and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440-05. The second certification program label includes the performance characteristics and approved inspection agency to indicate compliance with the requirements of ASTM E1886 and ASTM E 1996.

Each label contains a Certification Authorization Report (CAR) number located on the top right side of the label and a model name for the window. The following CAR numbers and model names are located on each label:

Label Identification:

		Certification Authorization Report (CAR) number	
System	Model	Label with AAMA/WDMA/CSA 101/I.S.2/A440-05	Label with ASTM E 1886 and ASTM E 1996
1	V-200 PVC Impact Equal/Oriel SH	167-459	167-258
2	V-200 PVC Impact Equal/Oriel SH	167-459	167-258
3	V-200 PVC Impact Equal/Oriel SH	167-460	167-259
4	V-200 PVC Impact Equal/Oriel SH	167-460	167-259

LIMITATIONS

Design pressures:

System	Maximum Width (in.)	Maximum Height (in.)	Design Pressures (psf)
1	54	80	+120/-150
2	54	80	+120/-150
3	54	80	+120/-150
4	54	80	+120/-150

Impact Resistance:

Systems 1 and 2: These window assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I zone** and the **Seaward zone**. The window assemblies passed Missile Level D specified in ASTM E 1996-04. The window assemblies may be installed at any height on the structure as long as the design pressure rating for the assemblies is not exceeded. These window assemblies will not need to be protected with an impact protective system.

Systems 3 and 4: These window assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I zone** and the **Seaward zone**. The window assemblies passed Missile Level A specified in ASTM E 1996-04. The window assemblies may be installed at heights **30 feet or higher** on the structure as long as the design pressure rating for the assemblies is not exceeded. **Note: These window assemblies may not be installed at heights less than 30 feet.** These window assemblies will not need to be protected with an impact protective system.

Tested to Higher Negative Design Pressure: The Keystone label indicates that the product was tested to a higher negative design pressure rating. The higher negative design pressure rating is specified in the table above.

Acceptance of Smaller Assemblies: Window assemblies with dimensions equal to or smaller than those specified above are acceptable within the limitations specified in this report.

INSTALLATION INSTRUCTIONS

Design Drawings:

Systems 1 and 2: The windows shall be installed in accordance with Drawing No. 08-01208, titled "Series V-200 PVC Single Hung Window 54" x 80" – Impact," sheets 1 through 9 of 9, dated February 1, 2011, signed, sealed, and dated February 16, 2011 by Luis R. Lomas, P.E. The stated drawings will be referred to as the approved drawings in this evaluation report.

Systems 3 and 4: The windows shall be installed in accordance with Drawing No. 08-01209, titled "Series V-200 PVC Single Hung Window 54" x 80" – Impact," sheets 1 through 9 of 9, dated February 1, 2011, signed, sealed, and dated February 16, 2011 by Luis R. Lomas, P.E. The stated drawings will be referred to as the approved drawings in this evaluation report.

General: The window assembly shall be installed in accordance with the manufacturer's installation instructions. Detailed installation instructions and drawings are available from the manufacturer.

Installation:

Wall Framing Construction: The windows may be mounted to several types of wall framing construction. The types of wall framing construction allowed include:

- Concrete (minimum compressive strength: 3,192 psi)
- Hollow concrete block (ASTM C-90, Grade N, Type 1 or greater)
- Wood dimension lumber (minimum Spruce-Pine-Fir)
- Wood backed (minimum Spruce-Pine-Fir) minimum 20 gauge steel

Fasteners:

- Concrete and hollow concrete block wall framing; Minimum ¼" diameter ITW Tapcons; Minimum 1 ¼" embedment; Minimum 2 ½" edge distance.

- Wood and wood backed steel wall framing; Minimum No. 14 screw; Minimum 1 9/16" embedment.

Fastener Spacing: The windows shall be installed as specified on the design drawings. The fasteners shall be long enough to penetrate a minimum of 1 ½ inches into the wall framing.

Note: The manufacturer's installation instructions shall be available on the job site during installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC), the International Building Code (IBC), and the Texas Revisions.